

### ABSTRACT

The present invention discloses a composite structure including an inorganic thin film having a defined mesostructure formed in a surfactant based formation process including a non-cationic surfactant template material, and, a conjugated polymer  
5 immobilized within the mesostructured inorganic thin film. A sensor using such a composite structure as a responsive element and a method of detecting trace amounts of nitro-containing organic species are also disclosed.